

# SPACE STATION PLATFORMS

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## INTERNATIONAL SPACE STATION PLATFORMS

- o FIRST STEP TOWARD ROUTINE APPLICATION OF SPECIAL FEATURES
  - GROWTH STEP FROM MULTI-MISSION SPACECRAFT EXPERIENCE
- o EXPANDS TECHNOLOGY IN SEVERAL AREAS
  - POWER DISTRIBUTION
  - THERMAL CONTROL
  - DATA MANAGEMENT
- o GROWTH CAPABILITIES SCARRED INCLUDES
  - ROBOTIC SERVICING
  - PLATFORM GROWTH
  - ARTIFICIAL INTELLIGENCE FOR AUTONOMY

## PLATFORM CONCEPTS REQUIRED

- o SUPPORT UNMANNED SCIENTIFIC RESEARCH & COMMERCIAL DEVELOPMENT
- o MULTIPLE PLATFORM TYPES

	<u>RESEARCH</u>	<u>COMMERCIAL</u>
- EARTH OBSERVATORIES	X	X
- ASTROPHYSICS OBSERVATORIES	X	
- MANUFACTURING FACILITIES	X	X
- LIFE SCIENCE LABORATORIES	X	

- o USER SUPPORT DEMANDS VERY DISTINCT
  - RESOURCE REQUIREMENTS
  - SPECIAL FEATURES

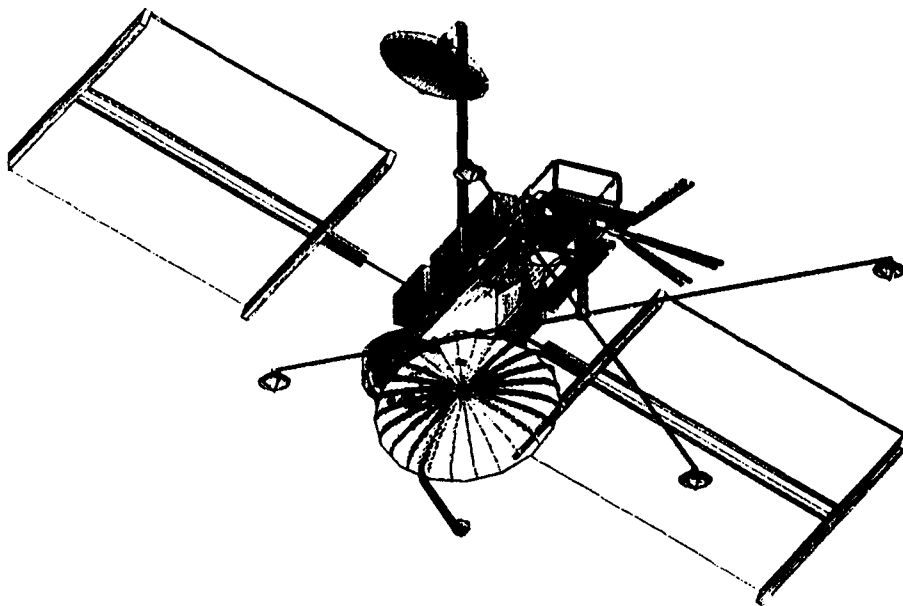
# RESOURCE REQUIREMENTS

RESOURCE	REQUIREMENT	SUBSYSTEM						
		S T R U C	T H E R M	E L E C T	C O M M	D A T A	P R O C E	A T T R I B
SIZE	EXTENSIVE MOUNTING AREA REQMS OF MULTIPLE PAYLOAD SETS	X						X
HEAT	20-40 KILOWATT HEAT DISSIPATION SYSTEMS FOR PAYLOADS & SUBSYSTEM ELEMENTS	X	X					
POWER	GENERATION & DISTRIBUTION OF 20-40 KILOWATTS TO MULTIPLE USERS AS UTILITY SERVICE			X		X		
DATA	INDIVIDUAL INSTRUMENTS EXCEEDING 300 MEGABITS/SECOND WITH PAYLOAD SETS IN 450-500 RANGE				X	X		
COMPUTATION	ONBOARD DATA REDUCTION TO REDUCE TRANSMISSION AND GROUND LOADS					X		
POINTING	STABLE PRECISION POINTING OF LARGE FLEXIBLE PAYLOADS & STRUCTURES	X	X					X
ENVIRONMENT	MICRO-GRAVITY FOR MATERIAL PROCESSING AT 10 (-5) TO 10 (-9) G LEVELS	X					X	X

## **SPECIAL FEATURES**

- o SERVICING**
  - EXTENDED MISSIONS THROUGH PREVENTATIVE MAINTENANCE & REPAIR
  - CHANGE-OUT OF PAYLOAD SET EXTENDING PLATFORM USE OVER MULTIPLE MISSION LIVES
  - ROBOTIC SERVICING SUPPORT
- o GROWTH**
  - ADAPTIVE SUBSYSTEMS AS REQUIREMENTS EXPAND BEYOND BASELINE
- o MODULARITY**
  - COMMON SUBSYSTEM SUPPORT OF DIFFERING MISSIONS TO REDUCE USER DEVELOPMENT REQUIREMENTS
- o AUTONOMOUS OPERATIONS**
  - REDUCED GROUND SUPPORT FOR LIFE CYCLE COST CONTROL

## **SPACE STATION PLATFORM POLAR CONFIGURATION**



SPACE STATION PLATFORM  
SIRTF CONFIGURATION

